



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,002	12/19/2001	Jesse Chienhua Shan		3660

7590 08/30/2004
Chun M. Ng
4003 47th Ave. S.
Seattle, WA 98118

EXAMINER

HOFFMANN, JOHN M

ART UNIT	PAPER NUMBER
----------	--------------

1731

DATE MAILED: 08/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/025,002	SHAN, JESSE CHIENHUA	
	Examiner	Art Unit	
	John Hoffmann	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/16/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6,8-13,16 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,8-13,16 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-2, 4-6, 8-13, 16 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 10 There is no support for the new limitation that a width of the waveguide support is less than the height of the waveguide. Although the drawings show such a relationship – such is immaterial because it is assumed that drawing are not made to scale – unless otherwise indicated.

Claim 1: there is no support for the waveguide support “being raised” relative to the lower cladding layer as claimed. Examiner could find no support for such. More over there is no support for the raising being “such that said at least one waveguide support has a waveguide support width dimension and a waveguide support height dimension. It would seem that the waveguide support would have those dimensions – regardless of whether it is raised or not. As can be seen from applicant’s figures 1-2, the supports are part of the lower cladding layer 103: so the claims require the cladding

Art Unit: 1731

being raised relative to itself – which is impossible – so clearly there can't be any support for it.

To further explain "impossible": it is impossible to raise something relative to itself. One can only raise something relative to something else. If one raises 102 a height of x , then the 103 is raise a height x and $(x - x = 0)$ which means there is "0" relative movement.

The same applies to claim 11.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2, 4-6, 8-13, 16 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no antecedent basis for "said waveguide height dimension" in claim 10.

Claim 20: It is unclear what is meant by the core material being "non-rectangular". Namely non-rectangular is typically used to describe a 2-dimensional feature. However, it is unclear how to apply it to a 3-dimensional object – such as the present core. It is unclear if it requires "at least one feature that is not a rectangular" or if it requires that "no feature is rectangular". Whereas it is clear that applicant's cross section is non-rectangular. When looking down at it, it may be rectangular. Could one

practice the heart of Applicant's invention (i.e. non-rectangular cross-section) but make the core non-rectangular when looking down at it. Further, the term "non-rectangular" is not sufficiently described because when looking at figures 2-3 of Bruce 5119460, the core 40 has non-rectangular profiles – in addition to the rectangular profile of figure 1.

Claim 1: it is unclear what is meant by the waveguide support "being raised" relative to the lower cladding layer. The specification make no mention of a raising step – so it is unclear what is meant by the claim language. The same applies to claim 11.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-2, 5 and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Bruce 5119460.

Looking at figure 1 of Bruce, 20 is the lower cladding layer which as a waveguide support 30. Although Bruce doesn't call it a support, it does support the waveguide 40. Applicant has not defined "waveguide support" in a manner which would preclude 30 from being considered a waveguide support. 50 is the upper cladding layer. Figure 4 shows all the steps.

Claim 2 is clearly met.

Claim 5: see col. 3, line 46.

Claim 8: see claim 1 of Bruce.

Claim 9: figure 1 shows the substrate 10: the other layers are formed in situ – i.e. on top of the substrate.

Claim Rejections - 35 USC § 103

Claim 10 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bruce 5119460.

Claim 10: Assuming "waveguide height" was intended to be "waveguide support height": Col. 3, lines 38 and 45 of Bruce indicates that the exemplary width of (the waveguide support) 30 is 7 microns. And the height/thickness is 5 microns (lines 43-44 of col. 3). Layer 40 is exemplary about 1.2 microns (col. 4, lines 49-50). Looking at

figure 3, the top surface of 40 will be $5 + 1.2 = 6.2$ microns above cladding 20. However, the uppermost height of 30 is shown to be even higher than the top surface of 40. But there is no indication as to how much the two ends are above the middle. It would have been obvious to have the ends an additional 1.2 microns above 40 – because this is what is represented in the drawing. Alternatively, it would have been obvious to have whatever height is desired, based upon how much substrate space one has available. If the outer edges are 1.2 microns higher, then the height at the ends would be $6.2 + 1.2 = 7.4$ microns. The width dimension of 7 microns is less than this height dimension.

Rather than obviousness rejection, anticipation applies because it is deemed that Bruce's "about 7" microns encompasses 6.4 microns because it is only 10% less; and that "about 5" microns encompasses 5.5 microns – which is only 10 % more. And that Bruce's "about 1.2" microns encompasses 1.3 microns because it is only 10% more. And that such values – in the context of Bruce's figure 3 embodiment would yield the top surface of the 40 to be $5.5 + 1.3 = 6.9$ microns which would be greater than the about 7 micron value of 6.4 microns.

Further arguments to support a showing anticipation include that the "about" limitations of Bruce are indicated to be "exemplary" – one of ordinary skill would recognize that Bruce's disclosure even pertains to values that are slightly less than exemplary – or slightly beyond exemplary. Furthermore, to engineers and scientists numbers such as "5" and "7" contain only one significant digit. "5.4" written with only one significant digit is "5". "6.5" written to one significant digit is "7".

Claims 1,4,6,11-13 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruce 5119460 in view of Bazylenko 6154582.

Bruce discloses the invention as claimed, except for the HDPCVD (see above as to how Bruce discloses the invention) . Bruce only mentions using "low-pressure chemical vapor deposition, according to methods that are well-known in the art".

Bazylenko teaches a low-pressure (col. 3, lines 1-2) CVD process (HDPCVD) that has various advantages such as it is "simpler" (col. 3, line 15). Bazylenko also discloses that such can be used to make optical components on their own (col. 10, lines 7-9). It would have been obvious to use the Bazylenko deposition technique as the Bruce low-pressure technique – for the advantages that Bazylenko teaches.

Claim 4 is clearly met.

Claim 6: figures 6a and 6b (and the associated text) of Bazylenko which disclose the patterning and etching. Col. 8, lines 15-19 discloses the depositing. Bruce does not teach how to create the particular shapes – it would have been obvious to use the Bazylenko shaping method because it is compatible with the rest of the Bazylenko deposition steps.

The rest of the limitations (that are in claims 11-13, 16 and 20) are discussed above.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

It is argued that the term "in situ" in the semiconductor processing arts has a particular meaning that is not being used by the Office. First, the relevant art is the optical device art not the semiconductor art. Second, applicant has not given any evidence as to what the claims mean at the time of the invention. Reference to an Internet link does not constitute evidence – for a whole host of reasons including examiner can only guess as to what on the link applicant is referring to – and the a page is only indicative of what is present on a given day – there is no reason to believe it indicates what was meant by the time of the invention. Third applicant refers to lots of different meanings including "the ability to perform multiple steps or tasks without the need to remove the semiconductor from a process chamber" and "within the same chamber" – examiner cannot figure out which definition applicant indicates is proper.

It is noted that what applicant "intended" a term to mean is mostly not relevant.

The specification must clearly set forth the definition explicitly and with reasonable clarity, deliberateness and precision. *Teleflex Inc. v. Ficosa North America Corp.*, 63 USPQ2d 1374, 1381 (fed. Cir. 2002), *Rexnord Corp. v. Laitram Corp.* 60 USPQ2d 1851, 1854 (fed. Cir. 2001) and MPEP 2111.01.

Claims are given their broadest reasonable interpretation. Whereas applicant's definition is probably reasonable, the rejection's reliance on a non-technical definition is also reasonable. Since the non-technical definition is broader – that is how the Office interprets the claim.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

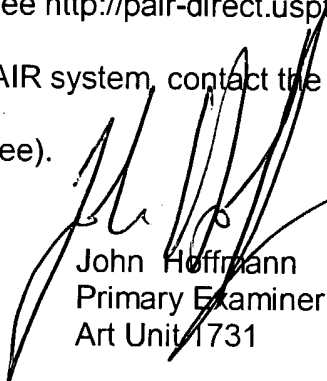
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1731

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John Hoffmann
Primary Examiner
Art Unit 1731

8-26-04

jmh